

Leak Detection

SIR

Owners and Operators Seminars

What is SIR ?

- SIR which stands for Statistical Inventory Reconciliation is a monthly monitoring method of release detection for storage tank systems (Tank and Piping).
- SIR is a method that uses the Inventory Control data to generate: 1) An estimated leak rate and 2) A statement indicating a
- “ Pass”, “Fail”, or “Inconclusive”.

How is SIR Done?

- An Owner may send his inventory data, collected manually every day using the dip-stick and the daily reading of the dispensing totalizer, to a service provider (SIR company) by some means like mail, fax, or modem. OR
- An Owner may send his inventory data, collected from the ATG system and the daily reading of the dispensing totalizer.

How good is SIR?

- SIR is as good as the quality of the inventory data used in the analysis.
- The estimated leak rate and the estimated minimum detectable leak (MDL) are usually the best indicators for the reliability of the results.
- Only some Quantitative SIR methods are approved for use in Michigan.

Please Keep in Mind:

- Not all SIR methods are approved for use in Michigan.
- Approved SIR methods are either: Stand alone methods or a vendor- provided- service methods.
- Prior approval is required for use of any SIR method at each site. Approval must also be requested for any additional sites.

Stand Alone Methods:

- Must be approved. Ask the vendor for a copy of the approval letter.
- User must **own** the storage tank systems that are monitored by the SIR system.
- User must request approval specifying the sites and the tank systems to be monitored.
- User must comply with all the conditions or contingencies of approval.

SIR Vendor-Provided-Service Systems:

- Must be approved. Ask vendor for a copy of the approval letter.
- User must request approval for the utilization of the SIR method at each site, and specify the storage systems that will be monitored by this method, and must request approval of any additional sites.
- User must comply with all the conditions or contingencies of approval.

SIR IS NOT:

- Similar to the balancing of a checking account or the manual Inventory Reconciliation.
- SIR is not infallible, but it has the same probability of detection and probability of false alarms as any other method of leak detection.
- SIR is not appropriate for all users or all locations.

What does a “Pass” Mean?

- It should mean that there is at least a 95% probability that the storage system is not leaking, and there is 5% probability or less that the reported result is false.
- The third party evaluation specifies the probabilities for each SIR system.

What does a “Fail” Mean?

- It means a suspected release is indicated based on a probability of at least 95% with a probability of a false alarm of 5% or less.
- You must report a suspected release.
- You must order non-SIR tank and line tightness tests.

What does an “Inconclusive” mean?

- Inconclusive means that the inventory data is not very good, or there are variations in the data causing the analysis to be unreliable.
- You must review the data and the vendor's comments for some explanation.
- You must inspect the sumps.
- Two successive “Inconclusive” reports are the same as a “Fail” report.

Things to watch for in the SIR report?

- Make sure that the report generate an inventory data sheet that matches the data that you transmitted to the SIR vendor.
- Make sure that the report include an estimated leak rate in gallons per hour for example 0.03 gallons per hour.
- If an MDL is reported make sure that it is equal to or less than 0.1 gallons per hour.

The Bottom Lines For SIR

- The SIR methods that are approved for use in Michigan are believed to be reliable and capable of detecting leaks.
- Providing the best data possible should result in the most reliable information about the storage system.

- Thank You!

